



Timester Challenge



Venn Diagrams and Probability

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50 people were asked if they've been on holiday to destination in England or Scotland.

Work out

$P(E) =$
 $P(E \cap S) =$
 $P(S') =$

Bronze ★

Work out

$P(B) =$
 $P(A') =$
 $P(A \cup B) =$

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Bronze ★

100 members of a club were asked if they have a brother or a sister.

50 people have a sister

59 people have only a brother

33 people have both a brother and sister.

Represent this information in a Venn diagram.

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Calculate

$P(A \cap B) =$
 $P(A \cup B) =$
 $P(A \cup B)' =$

Silver ★

40 students are asked if they study geography or history.

27 students study history.

24 students student geography.

3 students study neither.

Complete the Venn Diagram.

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What is the probability of selecting a student who studies both history and geography?

Gold ★



Timester Challenge

Answers

Venn Diagrams and Probability



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50 people were asked if they've been on holiday to destination in England or Scotland. Work out

$$P(E) = \frac{17+8}{50} = \frac{25}{50} = \frac{1}{2}$$

$$P(E \cap S) = \frac{8}{50} = \frac{4}{25}$$

$$P(S') = \frac{17+3}{50} = \frac{20}{50} = \frac{2}{5}$$

Bronze ★

Work out

$$P(B) = \frac{4}{16}$$

$$P(A') = \frac{8}{16} = \frac{1}{2}$$

$$P(A \cup B) = \frac{10}{16} = \frac{5}{8}$$

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Bronze ★

100 members of a club were asked if they have a brother or a sister.
 50 people have a sister
 59 people have only a brother
 33 people have both a brother and sister.
 Represent this information in a Venn diagram.

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Calculate

$$P(A \cap B) = \frac{33}{100}$$

$$P(A \cup B) = \frac{76}{100} = \frac{38}{50} = \frac{19}{25}$$

$$P(A \cup B)' = \frac{24}{100} = \frac{12}{50} = \frac{6}{25}$$

Silver ★

40 students are asked if they study geography or history.
 27 students study history. $27+24=51$
 24 students student geography.
 3 students study neither. $40-3=37$
 $37-51=-14$ overlap
 Complete the Venn Diagram.

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What is the probability of selecting a student who studies both history and geography?

$$P(H \cap G) = \frac{14}{40} = \frac{7}{20}$$

Gold ★